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RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/030,571

DATE: 12/12/2002 P.6
TIME: 14:43:26

Input Set : A:\2401gseq.001

Output Set: N:\CRF4\12122002\I030571.raw

```

4 <110> APPLICANT: Cantor, Charles R.
5      Przetakiewicz, Marek
6      Smith, Cassandra L.
7      Sano, Takeshi
9 <120> TITLE OF INVENTION: Positional Sequencing by Hybridization
12 <130> FILE REFERENCE: 25491-2401G
14 <140> CURRENT APPLICATION NUMBER: US 09/030,571
15 <141> CURRENT FILING DATE: 1998-02-24
17 <150> PRIOR APPLICATION NUMBER: US 07/792,012
18 <151> PRIOR FILING DATE: 1992-11-06
20 <150> PRIOR APPLICATION NUMBER: US 08/110,691
21 <151> PRIOR FILING DATE: 1993-08-23
23 <150> PRIOR APPLICATION NUMBER: US 08/470,832
24 <151> PRIOR FILING DATE: 1995-06-06
26 <160> NUMBER OF SEQ ID NOS: 54
28 <170> SOFTWARE: FastSEQ for Windows Version 4.0
30 <210> SEQ ID NO: 1
31 <211> LENGTH: 15
32 <212> TYPE: DNA
33 <213> ORGANISM: Artificial Sequence
35 <220> FEATURE:
36 <223> OTHER INFORMATION: Oligonucleotide
38 <400> SEQUENCE: 1
39 tcgagaacct tggct                                     15
41 <210> SEQ ID NO: 2
42 <211> LENGTH: 18
43 <212> TYPE: DNA
44 <213> ORGANISM: Artificial Sequence
46 <220> FEATURE:
47 <223> OTHER INFORMATION: Oligonucleotide
49 <400> SEQUENCE: 2
50 ctactaggct gcgtagtc                                   18
52 <210> SEQ ID NO: 3
53 <211> LENGTH: 23
54 <212> TYPE: DNA
55 <213> ORGANISM: Artificial Sequence
57 <220> FEATURE:
58 <223> OTHER INFORMATION: Oligonucleotide
60 <400> SEQUENCE: 3
61 gatgatccga cgcacagag ctc                             23
63 <210> SEQ ID NO: 4
64 <211> LENGTH: 23
65 <212> TYPE: DNA

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```

66 <213> ORGANISM: Artificial Sequence
68 <220> FEATURE:
69 <223> OTHER INFORMATION: Oligonucleotide
71 <400> SEQUENCE: 4
72 gatgatccga cgcattcagag ctt                23
74 <210> SEQ ID NO: 5
75 <211> LENGTH: 23
76 <212> TYPE: DNA
77 <213> ORGANISM: Artificial Sequence
79 <220> FEATURE:
80 <223> OTHER INFORMATION: Oligonucleotide
82 <400> SEQUENCE: 5
83 gatgatccga cgcattcagag cta                23
85 <210> SEQ ID NO: 6
86 <211> LENGTH: 23
87 <212> TYPE: DNA
88 <213> ORGANISM: Artificial Sequence
90 <220> FEATURE:
91 <223> OTHER INFORMATION: Oligonucleotide
93 <400> SEQUENCE: 6
94 gatgatccga cgcattcagag ccc                23
96 <210> SEQ ID NO: 7
97 <211> LENGTH: 23
98 <212> TYPE: DNA
99 <213> ORGANISM: Artificial Sequence
101 <220> FEATURE:
102 <223> OTHER INFORMATION: Oligonucleotide
104 <400> SEQUENCE: 7
105 gatgatccga cgcattcagag ttc                23
107 <210> SEQ ID NO: 8
108 <211> LENGTH: 23
109 <212> TYPE: DNA
110 <213> ORGANISM: Artificial Sequence
112 <220> FEATURE:
113 <223> OTHER INFORMATION: Oligonucleotide
115 <400> SEQUENCE: 8
116 gatgatccga cgcattcagaa ctc                23
118 <210> SEQ ID NO: 9
119 <211> LENGTH: 23
120 <212> TYPE: DNA
121 <213> ORGANISM: Artificial Sequence
123 <220> FEATURE:
124 <223> OTHER INFORMATION: Oligonucleotide
126 <400> SEQUENCE: 9
127 gatgatccga cgcattcagag atc                23
129 <210> SEQ ID NO: 10
130 <211> LENGTH: 23
131 <212> TYPE: DNA
132 <213> ORGANISM: Artificial Sequence

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134 <220> FEATURE:
135 <223> OTHER INFORMATION: Oligonucleotide
137 <400> SEQUENCE: 10
138 gatgatccga cgcacagag ctt                23
140 <210> SEQ ID NO: 11
141 <211> LENGTH: 23
142 <212> TYPE: DNA
143 <213> ORGANISM: Artificial Sequence
145 <220> FEATURE:
146 <223> OTHER INFORMATION: Oligonucleotide
148 <400> SEQUENCE: 11
149 gatgatccga cgcacagat atc                23
151 <210> SEQ ID NO: 12
152 <211> LENGTH: 23
153 <212> TYPE: DNA
154 <213> ORGANISM: Artificial Sequence
156 <220> FEATURE:
157 <223> OTHER INFORMATION: Oligonucleotide
159 <400> SEQUENCE: 12
160 gatgatccga cgcacagat att                23
162 <210> SEQ ID NO: 13
163 <211> LENGTH: 24
164 <212> TYPE: DNA
165 <213> ORGANISM: Artificial Sequence
167 <220> FEATURE:
168 <223> OTHER INFORMATION: Oligonucleotide
170 <400> SEQUENCE: 13
171 gatgatccga cgcacagag ctct                24
173 <210> SEQ ID NO: 14
174 <211> LENGTH: 24
175 <212> TYPE: DNA
176 <213> ORGANISM: Artificial Sequence
178 <220> FEATURE:
179 <223> OTHER INFORMATION: Oligonucleotide
181 <400> SEQUENCE: 14
182 gatgatccga cgcacagag ttct                24
184 <210> SEQ ID NO: 15
185 <211> LENGTH: 41
186 <212> TYPE: DNA
187 <213> ORGANISM: Artificial Sequence
189 <220> FEATURE:
190 <223> OTHER INFORMATION: Oligonucleotide
W--> 192 <221> NAME/KEY: misc_feature
193 <222> LOCATION: 21
194 <223> OTHER INFORMATION: y is t or c
W--> 196 <221> misc_feature
197 <222> LOCATION: (22)...(25)
198 <223> OTHER INFORMATION: n is a, t, c or g
W--> 200 <221> misc_feature

```

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```

201 <222> LOCATION: 26
202 <223> OTHER INFORMATION: r is a or g
W--> 204 <400> 15
W--> 205 gtcgacagtt gacgctacca ynnnnrtggt ctagagctag c 41
207 <210> SEQ ID NO: 16
208 <211> LENGTH: 41
209 <212> TYPE: DNA
210 <213> ORGANISM: Artificial Sequence
212 <220> FEATURE:
213 <223> OTHER INFORMATION: Oligonucleotide
W--> 215 <221> NAME/KEY: misc_feature
216 <222> LOCATION: 21
217 <223> OTHER INFORMATION: r is a or g
W--> 219 <221> misc_feature
220 <222> LOCATION: (22)...(25)
221 <223> OTHER INFORMATION: n is a, c, t or g
W--> 223 <221> misc_feature
224 <222> LOCATION: 26
225 <223> OTHER INFORMATION: y is c or t
W--> 227 <400> 16
W--> 228 ctgagagatt gacgctacca rnnnnytggt ctagaccgg g 41
230 <210> SEQ ID NO: 17
231 <211> LENGTH: 12
232 <212> TYPE: DNA
233 <213> ORGANISM: Artificial Sequence
235 <220> FEATURE:
236 <223> OTHER INFORMATION: Primer
238 <400> SEQUENCE: 17
239 gctagctcta ga 12
241 <210> SEQ ID NO: 18
242 <211> LENGTH: 41
243 <212> TYPE: DNA
244 <213> ORGANISM: Artificial Sequence
246 <220> FEATURE:
247 <223> OTHER INFORMATION: Oligonucleotide
W--> 249 <221> NAME/KEY: misc_feature
250 <222> LOCATION: 16
251 <223> OTHER INFORMATION: y is t or c
W--> 253 <221> misc_feature
254 <222> LOCATION: (17)...(20)
255 <223> OTHER INFORMATION: n is a, c, t or g
W--> 257 <221> misc_feature
258 <222> LOCATION: 21
259 <223> OTHER INFORMATION: r is a or g
W--> 261 <400> 18
W--> 262 gctagctcta gaccaynnnn rtggtagcgt caactgtcga c 41
264 <210> SEQ ID NO: 19
265 <211> LENGTH: 12
266 <212> TYPE: DNA

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```

267 <213> ORGANISM: Artificial Sequence
269 <220> FEATURE:
270 <223> OTHER INFORMATION: Primer
272 <400> SEQUENCE: 19
273 cccgggtcta ga 12
275 <210> SEQ ID NO: 20
276 <211> LENGTH: 41
277 <212> TYPE: DNA
278 <213> ORGANISM: Artificial Sequence
280 <220> FEATURE:
281 <223> OTHER INFORMATION: Oligonucleotide
W--> 283 <221> NAME/KEY: misc_feature
284 <222> LOCATION: 16
285 <223> OTHER INFORMATION: r is a or g
W--> 287 <221> misc_feature
288 <222> LOCATION: (17)...(20)
289 <223> OTHER INFORMATION: n is a, c, t or g
W--> 291 <221> misc_feature
292 <222> LOCATION: 21
293 <223> OTHER INFORMATION: y is c or t
W--> 295 <400> 20
W--> 296 cccgggtcta gaccarnnnn ytggtagcgt caactctoga g 41
298 <210> SEQ ID NO: 21
299 <211> LENGTH: 12
300 <212> TYPE: DNA
301 <213> ORGANISM: Artificial Sequence
303 <220> FEATURE:
304 <223> OTHER INFORMATION: Oligonucleotide
W--> 306 <221> NAME/KEY: misc_feature
307 <222> LOCATION: (3)...(9)
308 <223> OTHER INFORMATION: n is a, t, c or g
W--> 310 <400> 21
W--> 311 ggtnnnnnna cc 12
313 <210> SEQ ID NO: 22
314 <211> LENGTH: 12
315 <212> TYPE: DNA
316 <213> ORGANISM: Artificial Sequence
318 <220> FEATURE:
319 <223> OTHER INFORMATION: Oligonucleotide - Compliment strand
W--> 321 <221> NAME/KEY: misc_feature
322 <222> LOCATION: (4)...(9)
323 <223> OTHER INFORMATION: n is a, c, t or g
W--> 325 <400> 22
W--> 326 ggtnnnnnna cc 12
328 <210> SEQ ID NO: 23
329 <211> LENGTH: 15
330 <212> TYPE: DNA
331 <213> ORGANISM: Artificial Sequence
333 <220> FEATURE:

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RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/09/030,571

DATE: 12/12/2002
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Input Set : A:\2401gseq.001
Output Set: N:\CRF4\12122002\I030571.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:15; N Pos. 22,23,24,25
Seq#:16; N Pos. 22,23,24,25
Seq#:18; N Pos. 17,18,19,20
Seq#:20; N Pos. 17,18,19,20
Seq#:21; N Pos. 4,5,6,7,8,9
Seq#:22; N Pos. 4,5,6,7,8,9
Seq#:23; N Pos. 6,7,8,9,10,11,12,13,14,15
Seq#:24; N Pos. 1,2,3,4,5,6,7,8,9,10
Seq#:25; N Pos. 22,23,24,25
Seq#:27; N Pos. 17,18,19,20
Seq#:29; N Pos. 22,23,24,25
Seq#:31; N Pos. 17,18,19,20
Seq#:37; N Pos. 6,7,8,9,10,11,12,13
Seq#:38; N Pos. 1,2,3,4,5,6,7,8,9,10,11,12
Seq#:39; N Pos. 4,5,6,7,8
Seq#:40; N Pos. 4,5,6,7,8
Seq#:41; N Pos. 4,5,6,7,8,9
Seq#:42; N Pos. 4,5,6,7,8,9
Seq#:43; N Pos. 4,5,6
Seq#:44; N Pos. 4,5,6
Seq#:45; N Pos. 6,7,8,9,10,11,12,13,14
Seq#:46; N Pos. 1,2,3,4,5,6,7,8,9,10,11,12,13
Seq#:47; N Pos. 6,7,8,9,10
Seq#:48; N Pos. 1,2,3,4,5,6,7,8,9,10
Seq#:49; N Pos. 4,5,6,7,8
Seq#:50; N Pos. 4,5,6,7,8
Seq#:51; N Pos. 6,7,8,9,10
Seq#:52; N Pos. 1,2,3,4,5,6,7,8,9
Seq#:53; N Pos. 5,6,7,8,9
Seq#:54; N Pos. 5,6,7,8,9

VERIFICATION SUMMARY

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Input Set : A:\2401gseq.001

Output Set: N:\CRF4\12122002\I030571.raw

L:192 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:196 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:15
L:200 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:15
L:204 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:15
L:205 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:15 after pos.:0
L:215 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:219 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:16
L:223 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:16
L:227 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:16
L:228 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:16 after pos.:0
L:249 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:253 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:18
L:257 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:18
L:261 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:18
L:262 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18 after pos.:0
L:283 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:287 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:20
L:291 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:20
L:295 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:20
L:296 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:20 after pos.:0
L:306 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:310 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:21
L:311 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:21 after pos.:0
L:321 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:325 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:22
L:326 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:22 after pos.:0
L:336 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:340 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:23
L:341 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:23 after pos.:0
L:351 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:355 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:24
L:356 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:24 after pos.:0
L:366 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:370 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:25
L:374 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:25
L:375 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:25 after pos.:0
L:385 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:389 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:26
L:400 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:404 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:27
L:408 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:27
L:409 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27 after pos.:0
L:419 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:423 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:28
L:434 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:438 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:29
L:442 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:29
L:443 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29 after pos.:0

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L:453 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:457 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:30
L:468 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:472 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:31
L:476 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:31
L:477 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:31 after pos.:0
L:487 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:491 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:32
L:546 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:550 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:37
L:551 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37 after pos.:0
L:561 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:565 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:38
L:566 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:38 after pos.:0
L:576 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:580 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:39
L:581 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:39 after pos.:0
L:591 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:595 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:40
L:596 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:40 after pos.:0
L:606 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:610 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:41
L:611 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:41 after pos.:0
L:621 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:625 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:42
L:626 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:42 after pos.:0
L:636 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:640 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:43
L:641 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:43 after pos.:0
L:651 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:655 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:44
L:656 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:44 after pos.:0
L:666 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:670 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:45
L:671 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:45 after pos.:0
L:681 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:685 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:46
L:686 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:46 after pos.:0
L:696 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:700 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:47
L:701 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:47 after pos.:0
L:711 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:715 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:48
L:716 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:48 after pos.:0
L:726 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:730 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:49
L:731 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:49 after pos.:0
L:741 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:745 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:50

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L:746 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:50 after pos.:0
L:756 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:760 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:51
L:761 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:51 after pos.:0
L:771 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:775 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:52
L:776 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:52 after pos.:0
L:786 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:790 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:53
L:791 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:53 after pos.:0
L:801 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:805 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:54
L:806 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:54 after pos.:0